AMENDMENTS TO THE CLAIMS:

1. (Previously Amended) A flow cytometry apparatus for the detention of particles from a plurality of samples comprising:

means for moving the plurality of samples comprising particles from a plurality of respective source wells into a fluid flow stream, said means for moving the plurality of samples comprising a pump;

means for introducing a separation gas between each of said plurality of samples in said fluid flow stream; and

a flow cytometer for hydrodynamically focusing said fluid flow stream and selectively analyzing said particles in each of said plurality of samples as said fluid flow stream passes through said flow cytometer.

2. (Original) The flow cytometry apparatus of claim 1, wherein said means for moving said plurality of samples further comprises an autosampler.

3. (Original) The flow cytometry apparatus of claim 2, wherein said autosampler includes a probe and said flow cytometry apparatus includes a means for exposing a probe tip of said probe to a jet of gas to remove liquid from said probe tip.

4. (Original) The flow cytometry apparatus of claim 2, wherein said autosampler includes a probe having a conical tip.

5. (Original) The flow cytometry apparatus of claim 2, wherein said autosampler includes a hydrophobic probe.

6. (Original) The flow cytometry apparatus of claim 5, wherein said probe comprises a hydrophobic material.

7. (Original) The flow cytometry apparatus of claim 5, wherein said probe is coated with a hydrophobic material.

9. (Previously Amended) The flow cytometry apparatus of claim 10, wherein a portion of said fluid flow stream passing through said peristaltic pump is contained within a high speed multi-sample tube.

10. (Original) The flow cytometry apparatus of claim 1, wherein said pump comprises a peristaltic pump.

11. (Original) The flow cytometry apparatus of claim 10, further comprising a single length of tubing extending from said autosampler to said flow cytometer.

12. (Original) The flow cytometry apparatus of claim 11, wherein said single length of tubing comprises a high speed multi-sample tube.

13. (Previously Amended) The flow cytometry apparatus of claim 12, wherein said high speed multi-sample tube comprises a poly vinyl chloride tube.

14. (Previously Amended) The flow cytometry apparatus claim 12, wherein said high speed multi-sample tube comprises a poly vinyl chloride tube having an inner diameter about 0.02 inches and a wall thickness of about 0.02 inches.

15. (Original) The flow cytemetry apparatus of claim 1, wherein said separation gas comprises air.

16. (Original) The flow cytometry apparatus of claim 1, wherein said plurality of samples are homogenous.

17. (Original) The flow cytometry apparatus of claim 1, wherein said plurality of samples are heterogeneous.

18. (Original) The flow cytometry apparatus of claim 1, wherein said particles comprise biomaterials.

19. (Original) The flow cytometry apparatus of claim 18, wherein said biomaterials are fluorescently tagged.

20. (Original) The flow cytometry appartus of claim 1, further comprising a well plate including said plurality of respective source wells.

21. (Original) The flow cytometry apparatus of claim 20, wherein said well plate includes at least 96 source wells.

22. (Original) The flow cytometry apparatus of claim 20, wherein said well plate includes at least 384 source wells.

23. (Original) The flow cytometry apparatus of claim 20, wherein said well plate includes at least 1536 source wells.

24. (Original) The flow cytometry apparatus of claim 20, wherein said well plate includes wells having a conical shape.

25. (Original) The flow cytometry apparatus of claim 20, wherein said well plate is mounted in an inverted position.

26. (Previously Amended) The flow cytometry apparatus of claim 1, further comprising a means for injecting a buffer fluid between adjacent samples in said fluid flow stream so that said adjacent samples are separated by two bubbles of separation gas and said buffer fluid located between said two bubbles of separation gas.

27. (Original) The flow cytometry apparatus of claim 1, wherein at least one said plurality of samples includes a drug present therein.

46. (Previously Amended) The flow cytometry apparatus of claim 1, wherein a portion of said fluid flow stream passing through said pump is contained within a tube having an internal diameter of 0.02 inches.

47. (Previously Amended) The flow cytometry apparatus of claim 10, wherein a portion of said fluid flow stream passing through said peristaltic pump is contained within a tube having an internal diameter of 0.02 inches.

48. (New) A flow cytometry apparatus for the detention of particles from a plurality of samples, comprising:

a pump for moving the plurality of samples comprising particles from a plurality of respective source wells into a fluid flow stream;

separation means for introducing a parameter-controlled separation gas between each of said plurality of samples in said fluid flow stream; and

a flow cytometer for hydrodynamically focusing said fluid flow stream and selectively analyzing said particles in each of said plurality of samples as said fluid flow stream passes through said flow cytometer, said separation gas having parameters of predetermined values to permit the hydrodymanic focusing of said fluid flow stream in said flow cytometer.

49. (New) The flow cytometry apparatus of claim 48, wherein said separation means includes tubing extending from said pump and having compression characteristics allowing said pump to move samples separated by gas through said tubing at a speed of at least 6 samples per minute without causing adjacent samples to mix with one another.

50. (New) The flow cytometry apparatus of claim 49, wherein said tubing has an inner diameter of less than about 0.03 inch.

50. (New) The flow cytometry apparatus of claim 50, wherein said inner diameter is greater than about 0.01 inch.

51. (New) The flow cytometry apparatus of claim 48, wherein said separation means includes tubing of a given size for introducing separation gas aliquots of a controlled volume into said fluid flow stream with said samples flowing at a certain rate, said given size and said controlled volume and said certain rate all being predetermined to permit the hydrodynamic focusing of said fluid flow stream in said flow cytometer.

52. (New) The flow cytometry apparatus of claim 51, wherein said given size is less than about 0.03 inch.

53. (New) The flow cytometry apparatus of claim 51, wherein said certain rate is at least six samples per minute.